AMENDMENTS TO THE SPECIFICATION

In the "Summary of the Invention," please amend the paragraph on page 3, beginning at line 15, as follows:

The present invention is directed to a method and an apparatus for exchanging programmable logic controllers of a control system configured in an active standby, duplex or redundant set-up. The configuration of the control system increases the rate and reliability of the data transfer between the active and standby controllers. It is an object of this invention to provide an active standby control system integrated on a communication network capable of replacing a programmable logic controller without significantly disrupting the performance of the control system or the network.

In the "Summary of the Invention," please amend the paragraph on page 3, beginning at line 22, as follows:

One embodiment of the present invention is directed to a method of providing an active standby control system. A first (primary) programmable logic controller and a second (secondary) programmable logic controller, each programmable logic controller having an operating state, are operably connected to each other and to an IO module. The first programmable logic controller, the second programmable logic controller and the IO module are operably connected together with a network connector and a high speed fiber optic network cable to form a sub-network. A network identifier, i.e., Internet Protocol address, is associated with each programmable logic controller. The operating state of each programmable logic controller is sensed wherein the network identifier associated with each programmable logic controller is determined by the operating state of each respective programmable logic controller. Signal communication over the sub-network is transmitted over the fiber optic cable at a rate of at least 100 Mb/s.

In the "Summary of the Invention," please amend the paragraph on page 4, beginning at line 4, as follows:

The control system operates normally until a failure in the primary mode programmable logic controller is detected or a programmable logic controller exchange is selected by an operator. Upon detecting a primary mode programmable logic controller failure, the secondary mode programmable logic controller configured in active standby is substituted in place of the failed primary mode programmable logic controller. The network identifier initially associated with the original primary mode programmable logic controller is associated with the newly substituted primary programmable logic controller. Thus the network identifier of the control system's primary mode programmable logic controller remains the same regardless of which programmable logic controller is functioning as the primary mode programmable logic controller. The exchange of the programmable logic controllers is accomplished without significantly disrupting the performance of the overall control system by substantially suspending or delaying the network's operation. Accordingly, the associated network identifiers of the programmable logic controllers are also exchanged. Alternatively, the Media Access Control (MAC) address of programmable logic controllers can be exchanged.

In the "Summary of the Invention," please amend the paragraph on page 4, beginning at line 22, as follows:

Yet a further embodiment of the present invention is directed to an active standby system for a control system. The active standby system comprises a first and a second programmable logic controller, each programmable logic controller comprises a central processing unit having an operating state. An IO module is operably connected to the first programmable logic controller and the second programmable logic controller with a high speed fiber optic network cable and a network connector. The high speed fiber optic network cable allows a signal to be transmitted over the high speed fiber optic network cable at a rate of at least 100 Mb/s.

In the "Summary of the Invention," please amend the paragraph on page 5, beginning at line 1, as follows:

Yet another embodiment of the present invention is directed to an active standby system for a control system. The active standby system comprises a first and a second programmable logic controller. Each programmable logic controller has an operating state. A high speed fiber optic network cable operably connects the first and second programmable logic controllers for transferring data between the programmable logic controllers at a rate of at least 100 Mb/s. A network identifier is assigned to each programmable logic controller and is responsive to the operating state of the respective programmable logic controllers. Each programmable logic controller comprises: a processor; a co-processor; an operating system executed by the processor; and, a co-operating system executed by the co-processor wherein the operating system and the co-operating system cooperate to transfer data between the first and second controllers. The operating system and the co-operating system cooperate to increase the rate of signal transmissions by eliminating the need for the signal to be transmitted over a backplane.

In the "Detailed Description of the Preferred Embodiment," please amend the paragraph on page 6, beginning at line 11, as follows:

Programmable Logic Controllers (PLCs) have been integrated with control systems in an active, hot standby or backup configuration wherein the primary PLC ~~controller~~ can be swapped or exchanged by operator personnel with a readily available backup PLC ~~controller~~ when a failure to the primary PLC ~~controller~~ is detected. Factory automation networks allow operator personnel to monitor the control system from a remote site. In an active standby configuration, a pair of PLCs~~controllers~~, ~~preferably programmable logic controllers,~~ PLCs are arranged in communication with each other. One of the PLCs~~controllers~~ is designated a primary PLC ~~controller~~ and actively monitors and controls a network while the other PLC ~~controller~~ functions in a hot standby mode for

backing up the primary PLC~~controller~~. If the primary PLC ~~controller~~ fails or is taken out of service, the backup PLC ~~controller~~ will be swapped in its place without significantly disrupting network operations. An additional concern for a network is the network identifier associated with each network device. Each individual device on the network is assigned a network identifier, preferably an Internet Protocol (IP) address. Thus, the exchange of PLCs ~~controllers~~ on the network also requires the exchange of their respective network identifiers. Throughout this Detailed Description, "controller" is understood to mean "programmable logic controller."

In the "Abstract of the Disclosure," please amend the paragraph on page 22 as follows:

A method and apparatus for providing an active standby control system comprising the steps of providing a first programmable logic controller and a second programmable logic controller, each controller having an operating state. A sub-network is formed by operably connecting the programmable logic controllers to an IO module with a fiber optic cable and a network connector. Data is transmitted over the sub-network at a rate of at least 100 Mb/s. A network identifier, i.e., Internet Protocol or Media Access Control address, is associated with each programmable logic controller. The network identifier of each controller is determined in response to the operating state of the respective programmable logic controller. The network connector can be a switch or a hub to assist in avoiding signal collisions and maintaining determinism on the sub-network.